

CLAIMS

1. An evaporator comprising:

a container in which a cooling medium is applied; and

a plurality of heat exchanger tubes arranged in the container in a bundled manner to form a flow passage through which a fluid to be cooled flow so as to evaporate the cooling medium by means of heat exchange between the cooling medium and the fluid to be cooled;

wherein a total cross sectional area of the heat exchanger tubes in a downstream section of the flow passage is smaller than a total cross sectional area of the heat exchanger tubes in an upstream section of the flow passage.

2. An evaporator according to claim 1, wherein the plurality of heat exchanger tubes have a common diameter, the flow passage comprises the downstream section and the upstream section, and the number of the heat exchanger tubes belonging to the upstream section is larger than the number of the heat exchanger tubes belonging to the downstream section.

3. An evaporator according to claim 1, wherein the heat exchanger tubes are arranged horizontally, and the position of uppermost heat exchanger tubes in the upstream section is higher than the position of uppermost heat exchanger tubes in the downstream section.

4. An evaporator comprising:

a container in which a cooling medium is applied; and

a plurality of heat exchanger tubes arranged in the container in a bundled manner to form a flow passage through which a fluid to be cooled flow so as to evaporate the cooling medium by means of heat exchange between the cooling medium and the fluid to be cooled;

wherein the heat exchanger tubes in a downstream section of the flow passage are spaced from each other by a first gap, and the heat exchanger tubes in an upstream section of the flow passage are spaced from each other by a second gap being larger than the first gap.

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5. An evaporator according to claim 4, wherein the plurality of heat exchanger tubes have a common diameter.
6. An evaporator according to claim 1, wherein the heat exchanger tubes are arranged horizontally, and the position of uppermost heat exchanger tubes in the upstream section is higher than the position of uppermost heat exchanger tubes in the downstream section.
7. A refrigerator comprising:
 - an evaporator according to claim 1 or 4;
 - a compressor which compresses a vaporized cooling medium;
 - a condenser which condenses and liquefies a compressed cooling medium in a vaporized state; and
 - an expansion valve which reduces a pressure of the cooling medium during a process of flowing a liquefied cooling medium to the evaporator.

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